IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of	:	SANDRO GREGORAT
United States Serial No.	:	09/461,072
Filed	:	December 14, 1999
Title	:	DATA SYNCHRONIZATION SYSTEM AND METHOD OF OPERATION
Art Group Unit	:	2171
Examiner	:	C. Nguyen

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Commissioner for Patents
Washington, D.C. 20231

Sir:

APPELLANT'S BRIEF UNDER 37 C.F.R. §1.192

This brief is in furtherance of the Notice of Appeal filed in this application on August 9, 2002. The fees required under 37 C.F.R. §1.17(c), and any required petition for extension of time for filing this appeal brief and fees for any such extension of time, are dealt with in the accompanying transmittal letter.

This brief is transmitted in triplicate (37 C.F.R. §1.192(a)).

This brief contains these items under the following headings, and in the order set forth below (37 C.F.R. §1.192(c)):

I   REAL PARTY IN INTEREST

II   RELATED APPEALS AND INTERFERENCES

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IX   APPENDIX OF CLAIMS INVOLVED IN THE APPEAL

The final page of this brief before the beginning of the Appendix of Claims bears the attorney's signature.

I   REAL PARTY IN INTEREST (37 C.F.R. §1.192(c)(1))

The real party in interest in this appeal is Samsung Electronics Co., Ltd.

II   RELATED APPEALS AND INTERFERENCES (37 C.F.R. §1.192(c)(2))

With respect to other appeals or interferences that will directly affect, or be directly affected by, or have a bearing on the Board's decision in this appeal, there are no such appeals or interferences.

III   STATUS OF CLAIMS (37 C.F.R. §1.192(c)(3))

The status of the claims in this application are:

A.   TOTAL NUMBER OF CLAIMS IN APPLICATION

There are twenty one (21) claims in the application (Claims 2-8, 10-16, and 18-24).

B.   STATUS OF ALL THE CLAIMS

1.   Claims previously canceled: Claims 1, 9 and 17.

2.   Claims withdrawn from consideration but not canceled: NONE.

3.   Claims pending: Claims 2-8, 10-16, and 18-24.

4.   Claims allowed: NONE.

5.   Claims rejected: Claims 2-8, 10-16, and 18-24.

C.   CLAIMS ON APPEAL

There are twenty one (21) claims on appeal. The claims are Claims 2-8, 10-16, and 18-24.

IV   STATUS OF AMENDMENTS (37 C.F.R. §1.192(c)(4))

Claims 2-8, 10-16, and 18-24 were finally rejected in the Office Action of May 9, 2002.

The Appellants then filed a proposed amendment on September 9, 2002. The proposed amendment

of September 9, 2002 made certain corrections to the text of the specification but did not amend

Claims 2-8, 10-16, and 18-24. In an Office Action dated September 26, 2002 the Examiner entered

the proposed amendment of September 9, 2002 but continued to reject Claims 2-8, 10-16, and 18-24.

V   SUMMARY OF INVENTION (37 C.F.R. §1.192(c)(5))

The Appellant's invention comprises an apparatus and method for operating a data

synchronization system. The invention comprises a data synchronization apparatus for maintaining

synchronization between a source data file (210, 220, 230) and a copy data file (260, 270, 280).

The data synchronization apparatus comprises a bulk copy controller 290 and an update

controller 295. The bulk copy controller 290 is capable of copying a plurality of data records

(211, 212, 213, 214) from the source data file (210, 220, 230) to the copy data file (260, 270, 280).

The update controller 295 is capable of detecting a change in a data record previously copied by the

bulk copy controller 290 from the source data file (210, 220, 230) to the copy data file

(260, 270, 280) and copying the changed data record from the source data file (210, 220, 230)

to the copy data file (260, 270, 280). The update controller 295 and the bulk copy controller 290

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operate substantially concurrently.

VI   ISSUES (37 C.F.R. §1.192(c)(6))

    A.   Whether Claims 2-8, 10-16, and 18-24 are unpatentable under 35 U.S.C. § 103(a) as being obvious in view of United States Patent No. 5,926,816 of *Bauer et al.* (hereafter, *"Bauer"*).

    B.   Whether the Examiner erred in finally rejecting Claims 2-8, 10-16, and 18-24 on May 9, 2002.

VII   GROUPING OF CLAIMS (37 C.F.R. §1.192(c)(7))

The Appellant does not make a statement under 37 C.F.R. §1.192(c)(7) regarding the grouping of claims.

VIII   ARGUMENTS

    A.   ARGUMENTS - Rejections under 35 U.S.C. §103 (37 C.F.R. §1.192(c)(8)(iv)):

In the Office Action of May 9, 2002 the Examiner rejected Claims 2-8, 10-16, and 18-24 under 35 U.S.C. §103(a) as being unpatentable over United States Patent No. 5,926,816 to *Bauer*.

Section 103(a) provides that "A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art of such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the

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art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made."

In *ex parte* examination of patent applications, the Patent Office bears the burden of establishing a *prima facie* case of obviousness. MPEP § 2142; *In re Fritch*, 972 F.2d 1260, 1262, 23 U.S.P.Q.2d 1780, 1783 (Fed. Cir. 1992). The initial burden of establishing a *prima facie* basis to deny patentability to a claimed invention is always upon the Patent Office. MPEP § 2142; *In re Oetiker*, 977 F.2d 1443, 1445, 24 U.S.P.Q.2d 1443, 1444 (Fed. Cir. 1992); *In re Piasecki*, 745 F.2d 1468, 1472, 223 U.S.P.Q. 785, 788 (Fed. Cir. 1984). Only when a *prima facie* case of obviousness is established does the burden shift to the Appellant to produce evidence of nonobviousness. MPEP § 2142; *In re Oetiker*, 977 F.2d 1443, 1445, 24 U.S.P.Q.2d 1443, 1444 (Fed. Cir. 1992); *In re Rijckaert*, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993). If the Patent Office does not produce a *prima facie* case of unpatentability, then without more the Appellant is entitled to grant of a patent. *In re Oetiker*, 977 F.2d 1443, 1445, 24 U.S.P.Q.2d 1443, 1444 (Fed. Cir. 1992); *In re Grabiak*, 769 F.2d 729, 733, 226 U.S.P.Q. 870, 873 (Fed. Cir. 1985).

A *prima facie* case of obviousness is established when the teachings of the prior art itself suggest the claimed subject matter to a person of ordinary skill in the art. *In re Bell*, 991 F.2d 781, 783, 26 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1993). To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the reference (or references when combined) references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference

(or references when combined) must teach or suggest all the claim limitations. The teaching or

suggestion to make the claimed invention and the reasonable expectation of success must both be

found in the prior art, and not based on Appellant's disclosure. MPEP § 2142.

With respect to the Examiner's characterization of the *Bauer* reference, the Appellant

respectfully submits that the Examiner has misinterpreted the *Bauer* reference. Please consider that

the claims of this Application are directed to a data synchronization apparatus that comprises a

"bulk copy controller" and an "update controller" that "operate substantially concurrently."

The Appellant is not claiming a "server" and a "client" that operate substantially concurrently.

In the May 9, 2002 Office Action the Examiner stated that:

> Both client and server side [of *Bauer*] have their own synchronizer (see
> column 8 line 3-45). This is referred same as "update controller" that applicant claim
> (See column 2 line 46-47). (May 9, 2002 Office Action, Page 2, Line 23 to Page 3,
> Line 2).

> Bauer does not clearly disclose the limitation of server and client both operate
> substantially concurrently. However, referring to Fig. 6A and 6B, column 4 line 40-
> 55, column 11 line 23 - column 13 line 60, wherein Bauer teaches that proper
> synchronization should be frequently verified, and the communication between client
> and server, it is clear that the claimed provision is inherent. The process that occurs
> between two checkpoints can be referred as "operate substantial concurrently".
> Nonetheless, to expedite prosecution, even if the limitation of the above were not
> inherent, it would have been obvious to one with ordinary skill in the art the time the
> invention was made to include such a step in order to generate a system that can
> operate concurrently. (May 9, 2002 Office Action, Page 3, Lines 3-12).

The function described by *Bauer* using Fig. 6A and Fig. 6B is the function performed by the

Appellant's "update controller 295." The operation of the *Bauer* device does not disclose, suggest

or even hint at the Appellant's claimed "bulk copy controller 290" and "update controller 295"

operating substantially concurrently. The portion of *Bauer* cited by the Examiner simply describes a method for sending data from a server to a client.

The Examiner asserted that the limitation of operating a server and a client "substantially concurrently" is either "inherent" or "obvious." The teaching of *Bauer* refutes such an assertion. Specifically, *Bauer* teaches that "[h]owever, for any refresh messages to be applied to the client table Tc, the client table Tc and the before-image log table Tb must have identical data. This implies that all current updates for a table T must be propagated to the server before a refresh request can be sent. Furthermore, refresh messages cannot be applied at the client for table T in any modifications had been made to the client table Tc since that last propagate." (Emphasis added) (*Bauer*, Column 12, Lines 13-20).

The term "before" in the above-emphasized portion shows that there is no concurrent operation of the server and the client in *Bauer*. That is, the server and the client of *Bauer* do not operate concurrently. First the client determines what client modifications have occurred since the client was last synchronized by the server. Then the client sends the modifications to the server. The server then determines what modifications have occurred at the server since the server last synchronized the client. The server then resolves any data conflicts and sends the modifications to the client as refresh data. (*Bauer*, Column 12, Line 64 to Column 13, Line 8). In *Bauer*, there is no concurrent operation between the server and the client. A careful reading of *Bauer* discloses that *Bauer* is directed to periodic (*i.e.*, non-concurrent) updating of server records based upon changed client records.

The Appellant respectfully submits that Column 4, Lines 40-45 of *Bauer* is directed to the periodic (or non-concurrent) updating of server records based upon changed client records. This may be more clearly understood with reference to Column 4, Lines 26-55 of *Bauer*:

> The server thus uses the update log for two purposes. The server uses the update log to create a view of the client's old values for conflict detection and then a view of the client's current values for refreshing the client. Both views are deduced from the update log without the client providing explicit information to the server. The process is based on knowing what a client's values are at the last refresh time and recreating client update activity from update operations performed by that client since that time. Consequently, the server can perform conflict detection and can formulate the effective database operations needed to bring the client into synchronization with the server while minimizing the amount of information communicated to the server by the client.
>
> Communication errors or errors at either client or server can result in tables that are not properly synchronized. For the greatest. reliability, proper synchronization should be frequently verified. The verification must perform well even on clients with slow disks and CPUs. To facilitate this verification, the server calculates a checksum value for the client from the server's view of the client table. The server then sends that calculated server checksum to the client. For the data to be valid, a checksum performed on the refreshed client table by the client must match the calculated server checksum. Preferably, the client calculates the client checksum from a before-image of the client table. That before-image is stored immediately after the refresh and the calculation of the client checksum is performed during the client propagation processing, instead of immediately after the refresh. Thus the client risks the use of invalid data. That risk, however, is exchanged for more efficient processing.

Bauer fails to teach, suggest or even hint at the Appellant's bulk copy controller and update controller and the fact that they operate substantially concurrently. *Bauer* further fails to provide any suggestion or motivation, either in *Bauer* alone or with the knowledge generally available to one of ordinary skill in the art, to modify *Bauer* to arrive at the Appellant's invention.

The only way one can arrive at the present invention is by looking backward from *Bauer* at the Appellant's invention, and, even then, one cannot make the *Bauer* server and clients perform bulk copies of data records from source data files to copy data files while an update controller substantially concurrently operates to detect changes in a data record previously copied and copying the changed data records from the source data file to the copy data file. It cannot be said that one of ordinary skill in the pertinent art would be presumed to know of the teachings of *Bauer* and could solve the same or a similar problem as that addressed by the Appellant. *EWP Corp. v. Reliance Universal, Inc.*, 755 F.2d 898, 906-07, 225 U.S.P.Q. 20, 25 (Fed. Cir.), *cert. denied*, 474 U.S. 843 (1985); *In re Sernaker*, 702 F.2d 989, 995, 217 U.S.P.Q. 1, 6 (Fed. Cir. 1983). The requisite motivation does not stem from any of these teachings, from the perspective of one of ordinary skill in the art, to arrive at the Appellant's invention. *Uniroyal Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 5 U.S.P.Q.2d 1434 (Fed. Cir. 1988).

Simply stated, Claim 2 is not *prima facie* obvious. As between Claim 2 and *Bauer*, Independent Claims 10 and 18 contain analogous limitations to those found in independent Claim 2. Claims 10 and 18 are therefore also not *prima facie* obvious. Dependent Claims 3-8, 11-16 and 19-24 include the limitations of their respective base and intervening claims. Therefore, the Appellant respectfully submits that Claims 2-8, 10-16 and 18-24 are patentable over *Bauer*.

The Appellant therefore respectfully submits that Claims 2-8, 10-16, and 18-24 are not obvious under 35 U.S.C. §103(a) in view of the *Bauer* reference.

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B.   ARGUMENTS - Final Rejection of Claims 1-21 (37 C.F.R. §1.192(c)(8)(v)):

For the foregoing reasons, the Appellant respectfully asserts that the final rejection of

Claims 2-8, 10-16, and 18-24 in the May 9, 2002 Office Action was improper. The Appellant

respectfully requests that the final rejection of Claims 2-8, 10-16, and 18-24 be withdrawn and that

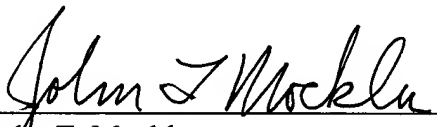Claims 2-8, 10-16, and 18-24 be allowed.

SUMMARY

For the reasons given above, the Appellants respectfully request reconsideration and

allowance of the claims and that this patent application be passed to issue.

Respectfully submitted,

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IX   APPENDIX OF CLAIMS INVOLVED IN THE APPEAL (37 C.F.R. §1.192(c)(9))

The text of each claim involved in the appeal is as follows:

2.   A data synchronization apparatus for maintaining synchronization between a source data file and a copy data file comprising:

a bulk copy controller capable of copying a plurality of data records from said source data file to said copy data file; and

an update controller capable of detecting a change in a data record previously copied by said bulk copy controller from said source data file to said copy data file and copying said changed data record from said source data file to said copy data file, wherein said update controller and said bulk copy controller operate substantially concurrently.

3.   The data synchronization apparatus set forth in Claim 2 wherein said source data file comprises at least one data table comprising a plurality of data records and a synchronization descriptor associated with said at least one data table.

4.   The data synchronization apparatus set forth in Claim 3 wherein said bulk copy controller sequentially copies said plurality of data records in said at least one data table in said source data file to said copy data file and sets said synchronization descriptor to an index value of a most recently copied one of said plurality of data records.

5.   The data synchronization apparatus set forth in Claim 4 wherein said update controller detects changes in said plurality of data records in said at least one data table in said source data file by monitoring selected ones of said plurality of data records in said at least one data table in said source data file having an index value less than said index value in said synchronization descriptor.

6.   The data synchronization apparatus set forth in Claim 5 wherein said update controller detects said changes in said plurality of data records in said at least one data table in said source data file by monitoring data write operations in said plurality of data records in said at least one data table in said source data file.

7.   The data synchronization apparatus set forth in Claim 6 wherein said update controller is capable of detecting that said copy data file is off line and has lost synchronization with said source data file.

8. The data synchronization apparatus set forth in Claim 7 wherein said update controller is capable of determining that said copy data file is on line and is capable of activating said bulk copy controller by setting at least one synchronization descriptor in said source data file to a zero value.

10. A telecommunications device comprising:

a primary processing system comprising a first memory capable of storing a source data file;

a secondary processing system comprising a second memory capable of storing a copy data file; and

a data synchronization apparatus coupled to said first and second memories for maintaining synchronization between said source data file and said copy data file, said data synchronization apparatus comprising:

a bulk copy controller capable of copying a plurality of data records from said source data file to said copy data file; and

an update controller capable of detecting a change in a data record previously copied by said bulk copy controller from said source data file to said copy data file and copying said changed data record from said source data file to said copy data file, wherein said update controller and said bulk copy controller operate substantially concurrently.

11. The telecommunications device set forth in Claim 10 wherein said source data file comprises at least one data table comprising a plurality of data records and a synchronization descriptor associated with said at least one data table.

12. The telecommunications device set forth in Claim 11 wherein said bulk copy controller sequentially copies said plurality of data records in said at least one data table in said source data file to said copy data file and sets said synchronization descriptor to an index value of a most recently copied one of said plurality of data records.

13. The telecommunications device set forth in Claim 12 wherein said update controller detects changes in said plurality of data records in said at least one data table in said source data file by monitoring selected ones of said plurality of data records in said at least one data table in said source data file having an index value less than said index value in said synchronization descriptor.

14. The telecommunications device apparatus set forth in Claim 13 wherein said update controller detects said changes in said plurality of data records in said at least one data table in said source data file by monitoring data write operations in said plurality of data records in said at least one data table in said source data file.

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15.   The telecommunications device set forth in Claim 14 wherein said update controller is capable of detecting that said copy data file is off line and has lost synchronization with said source data file.

16.   The telecommunications device set forth in Claim 15 wherein said update controller is capable of determining that said copy data file is on line and is capable of activating said bulk copy controller by setting at least one synchronization descriptor in said source data file to a zero value.

18.   A method of maintaining synchronization between a source data file and a copy data file comprising:

sequentially copying a plurality of data records from the source data file to the copy data file; and

detecting a change in a data record previously copied in the step of sequentially copying and copying the changed data record from the source data file to the copy data file, wherein the step of sequentially copying and the step of detecting a change are performed substantially concurrently.

19.   The method as set forth in Claim 18 wherein the source data file comprises at least one data table comprising a plurality of data records and a synchronization descriptor associated with the at least one data table.

20.   The method as set forth in Claim 19 wherein the step of sequentially copying comprises the substeps of:

sequentially copying the plurality of data records in the at least one data table in the source data file to the copy data file; and

setting the synchronization descriptor to an index value of a most recently copied one of the plurality of data records.

21.   The method as set forth in Claim 20 wherein the step of detecting a change comprises the substep of monitoring selected ones of the plurality of data records in the at least one data table in the source data file having an index value less than the index value in the synchronization descriptor.

22.   The method as set forth in Claim 21 wherein the step of detecting said changes in said plurality of data records in said at least one data table in said source data file is by monitoring data write operations in said plurality of data records in said at least one data table in said source data file.

23.   The method as set forth in Claim 22 wherein the step of detecting said changes is capable of detecting that said copy data file is off line and has lost synchronization with said source data file.

24.   The method as set forth in Claim 23 further comprising the step of determining that said copy data file is on line and is capable of activating a bulk copy controller by setting at least one synchronization descriptor in said source data file to a zero value.